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Life stress and problem-focused coping as predictors of positive affect

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LIFE STRESS AND PROBLEM-FOCUSED COPING AS PREDICTORS OF POSITIVE AFFECT

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ABSTRACT

LIFE STRESS AND PROBLEM-FOCUSED COPING
AS PREDICTORS OF POSITIVE AFFECT

by Deborah A. Hennessee

Research has demonstrated that positive emotions are valuable since they can undo the aftereffects of negative emotions (Fredrickson & Levenson, 1998). This thesis aims to determine which coping styles will predict positive affect when an individual experiences life stress. In this study, 229 San Jose State University (SJSU) undergraduate psychology students were sampled. The participants were issued a survey containing the Social Readjustment Rating Scale (SSRS; Holmes & Rahe, 1967) in order to measure life stress, portions of the Ways of Coping Questionnaire (WOC; Folkman & Lazarus, 1988) to measure problem-focused coping, and the Positive and Negative Affect Schedule (PANAS; Watson, Clark, & Tellegen, 1988) to measure affect. Findings indicated that problem-focused coping (PF-coping) predicted positive affect regardless of the level of life stress. Secondly, moderate levels of life stress and PF-coping predicted positive affect more than any other stress level. Finally, level of life stress moderated the relationship between PF-coping and positive affect.

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Introduction

Positive affect, or the extent to which individuals experience stable happiness, is one area that positive psychologists are continuing to research. Furthermore, the *Undoing Hypothesis* model suggests that the aftereffects of negative emotions can be diminished by utilizing behaviors that elicit positive emotions (Fredrickson & Levenson, 1998; Fredrickson, Mancuso, Branigan, & Tugade, 2000). Accordingly, the aim of this study is to learn how individuals may increase their psychological and physiological gains; that is, to learn how to cope with stress in a more healthy, productive manner. Therefore, this thesis seeks to answer the question: "Which coping styles will best influence positive affect?" While some researchers have already answered this question to an extent, their research has focused on other constructs, such as hardiness or mood rather than coping or affect. In addition, they have used special, rather than general populations and measures with limited psychometric properties, signaling limited reliability and validity.

Positive Affect

Watson has described positive affect as a broad disposition; a trait that reflects a stable difference in experiencing pleasurable emotions. It is described as the extent to which one experiences "joy, interest, confidence, and alertness" (Watson, 2002, p. 54). Positive affect has been shown to buffer individuals against the negative influences of stress, increasing overall health and well-being (Fredrickson, 2000, 2001; Tugade, Fredrickson, & Barrett, 2004). Fredrickson and Joiner (2002) have also suggested that positive emotions elicit more broadened coping responses, enabling more flexible and

creative thinking, and facilitating coping with stress (Lyubomirsky, 2000; Seligman & Csikszentmihalyi, 2000). On the contrary, negative affect describes the opposite types of states, such as anxiety, depression, and aggression. Negative affect is associated with decreased immune system functioning, increased illness, and long-term health problems (Fredrickson, 1998, 2000). Moreover, in stress and physical illness research, increasing attention is focused on factors, such as coping, which moderates the relationship between life stress and illness (Holahan & Moos, 1985; Johnson & Sarason, 1979; Kobasa, 1982; Lazarus, 2000; Smith, Smoll, & Ptacek, 1990; Tugade et al., 2004; Zeidner, 1994, 1995).

Coping Background

Coping styles and effectiveness of coping have been demonstrated as conjunctive moderator variables in terms of life stress (Smith et al., 1990; Ntoumanis & Biddle, 1998). In this sense, *life stress* relates to circumstances that cause a readjustment or transition in an individual's life (Holmes and Rahe, 1967). However, *coping* refers to cognitive and behavioral efforts to manage stressful situations and appraisals (Folkman & Lazarus, 1985). Coping is a process variable, and is considered in terms in which the dynamics and changes in coping style serve as a function of ongoing appraisals and reappraisals of the individual-environment relationship (Folkman, Lazarus, Dunkel-Schetter, DeLongis, & Gruen, 1986; Folkman & Lazarus, 1988; Lazarus, 1993).

Several types of coping have been observed, two of which are problem-focused (PF-coping) and emotion-focused (EF-coping). Crowley, Hayslip, and Hobdy (2003) describe *problem-focused coping* as cognitive efforts and behavioral strategies directed at solving the source of the problem that is causing distress. In contrast, *emotion-focused*

coping is defined as cognitive and behavioral efforts at reducing or managing emotional distress (Lazarus & Folkman, 1984; Folkman & Moskowitz, 2003).

Problem-focused and emotion-focused coping are related, but are predominantly used in distinctly different situations (Folkman & Lazarus, 1980; Folkman & Lazarus 1988). PF-coping is primarily used in situations appraised as changeable; however, EF-coping is typically used in situations not readily changed. An individual might use both PF- and EF-coping styles during exposure to a given stressor; they typically co-occur. However, particular stressors may elicit an emphasis of one type of coping over another (Carver & Scheier, 1994). Finally, coping and emotions are regarded as states rather than traits (Folkman & Moskowitz, 2003).

Problem-Focused Coping

Research on PF-coping has indicated that in contrast to the results concerning EF-coping, which are often correlated with negative affect, problem-focused coping either predicts or interacts with life stress to increase levels of positive affect (Crowley, et al., 2003; Dunkley, Zuroff, & Blankstein, 2003; Folkman & Moskowitz, 2003; Ntoumanis & Biddle, 1998; Turner-Cobb & Steptoe, 1998). PF-coping has also been described as a resource that is positively related to well-being (Bedi & Brown, 2005; Diwan, Jonnalagadda, & Balaswamy, 2004). More recently, Yamasaki, Sakai, and Uchida (2006) found a positive relationship between positive affect and both planful problem solving and cognitive reinterpretation (two factors of PF-coping).

PF-coping includes strategies for acquiring information, effective decision-making, planning, and resolving conflicts. It also includes actions directed at gathering

resources to deal with the underlying problem, such as skills, tools, and knowledge; it includes instrumental, situation-specific, and task oriented strategies (Lazarus & Folkman, 1984; Folkman & Moskowitz, 2000; Crowley et al., 2003).

Researchers vary on their operational definitions related to the components of PF-coping. Ntoumanis & Biddle (1998) describe it as increased effort, planning, and suspension of competing activities. Turner-Cobb & Steptoe (1998) found that PF-coping included problem solving, cognitive restructuring (which is similar to positive reappraisal), and seeking social support. This study will follow Turner-Cobb & Steptoe's model that problem-focused coping is composed of three factors: planful problem solving, positive reappraisal, and seeking social support.

Life Stress

Folkman and Lazarus (1985) offer a general definition for stress, which is the predominant definition in the stress and coping literature. *Stress* is the relationship between the person and the environment that is appraised as relevant to their well-being in which the person's resources are taxed or exceeded. *Life stress*, a more specific definition for this study, is defined as a readjustment or transition to a situation; it can synonymously be considered as a "life event" or "life change" (Holmes & David, 1989). The variable has additionally been described as "emotional stress" and "object loss" (Holmes and Rahe, 1967). Findings from a study conducted by Wyler, Masuda, and Holmes (1989) indicated a positive relationship between the occurrence of life events and the onset of illness. In addition, Rahe, McKean, and Arthur (1967) showed that illness clustered around an individual's basal life change level.

An interesting phenomenon concerning life stress in this study is that some of the life events may be deemed as situationally more changeable or "controllable by action," such as enrolling in college or getting married, while other life events may be "refractory to change," such as being laid off from work or the death of a close family member (Lazarus, 1993, p. 234). In this respect, it is the changeable events that people generally contain a sense of control over the situation, in which PF-coping displayed a strong relationship. In the unchangeable events, where there is little personal control or choice over the situation, EF-coping has been represented as showing a strong relationship. With respect to this study, the life stress scale contains a combination of changeable and unchangeable life readjustments. This study will address which levels of both changeable and unchangeable life stress and PF-coping predict positive affect.

Rationale

It is likely that the relationship between coping and affect is bidirectional, meaning that both variables influence each other (Folkman & Lazarus, 1988; Kirkcaldy, Cooper, Eysenck & Brown, 1994). Folkman and Moskowitz (2003) suggest two options when addressing the reciprocal relationship between coping and affect: one can modify how people feel or modify how they cope. That is, in changing the pattern of one variable, a result in the other variable should follow. Therefore, in selecting an adaptive coping style for a given stressor, such as problem-focused coping, one may modify subsequent coping behavior, which will affect a decrease in stress level, and hence, increase positive affect.

There are several articles, which offer theoretical support for the relationship between PF-coping and positive affect, while others endorse the factors of PF-coping. First, research has indicated that problem-focused coping and the extent to which coping strategies were thought to be effective, predicted positive affect for athletes (Ntoumanis & Biddle, 1998). The article, however, describes problem-focused coping as increased effort, planning, and suppression of competing activities. In addition, it was not clear exactly which of the COPE inventory (Carver, Scheier, & Weintraub, 1989) factors were utilized in the definition of PF-coping; however, it was clear that seeking social support was not one of them.

A second argument for the theoretical basis for this study is Crowley et al.'s (2003) research on overall hardiness. It was found that hardiness (a personality style with which people may better cope with stress) and life events, such as job loss, interacted with planful problem solving, positive reappraisal, and positive affect. In other words, an interaction exists; however, the study did not demonstrate that problem-focused coping *predicts* positive affect. The study provides a basis for two of the PF-coping factors used in this study since both planful problem solving and positive reappraisal have been shown to *influence* positive affect.

Third, Turner-Cobb and Steptoe (1998) conducted a study on infectious illnesses in children and found that the impact of life hassles was moderated by coping style. In this study problem-focused coping was negatively related to symptom duration. Additionally, the researchers conducted a factor analysis on items from the Kidcope questionnaire (Spirito, Stark, & Williams, 1988), which is a brief checklist for use with

pediatric populations. Findings from factor analyses indicated that planful problem solving, positive reappraisal, and seeking social support loaded onto one factor (PF-coping) and obtained high factor loadings, indicating correlation of, but not prediction of positive affect. Therefore, there is adequate theoretical support for the variables used in this study. The argument has been offered that the aforementioned subfactors of PF-coping are justifiable factors to utilize, since positive relationships have been demonstrated.

Prior research that has analyzed coping and positive affect has been limited in a variety of domains. First, while physiological measures have been employed in the past to assess the effectiveness of coping strategies, their validity has been called into question (e.g., Ntoumanis and Biddle, 1998). Although containing alternate limitations, self-report inventories circumvent several of the validity issues associated with physiological indicators, and may allow the researcher to more appropriately assess the cognitive effectiveness of coping styles by allowing the participant to share their own perceptions. Therefore, a survey method of measurement will be used in this study. In addition, the sample in Ntoumanis & Biddle's study was from the south of England, and included middle to high socioeconomic status individuals. The current study will attempt to enhance the generalizability of previous work by sampling from a general population comprised of adults from an ethnically and socio-economically diverse university in the United States.

Second, Crowley et al.'s (2003) study was also limited in the generalizability of their findings because selection bias was noted in the more hardy individuals that may

have been inclined to participate in the study. In this respect, it may be that individuals who are higher on personality factors that influence successful coping may be more interested in volunteering for a situation that requires self evaluation. This study will focus on a general population, so neither self-selection nor hardiness factors will be a concern. In addition, the "instruments used to measure hardiness serve as limitations in themselves" (p. 246). The researchers suggested that instruments available for measuring hardiness "raise psychometric questions," which tend to make findings across studies challenging to interpret (p. 246). This proposal, however, seeks to observe how coping styles (in particular, PF-coping), rather than a personality dimension of coping (i.e., hardiness) predicts affect.

Third, Turner-Cobb and Steptoe's (1998) study contains specific limitations that could be amended in this study. The authors used the Profile of Mood States (POMS; Horowitz, Adler, & Kegeles, 1988) inventory to measure mood rather than assessing affect. Mood is a different construct than affect; in terms of duration, *mood* is typically longer lasting, while *affect* is considered temporary and changeable (Fiske & Taylor, 1991). The study also investigated life stress as a combination of major life events and weekly hassles; instead this study will focus only on life stress. The sample consisted mainly of white, middle-class boys and girls with upper respiratory illnesses, which may limit the generalizabilty of the results; whereas this study will use a general population. Finally, the purpose of the study was to observe psychosocial influences on the risk of infectious illnesses in children; whereas the purpose of this study is to assess the ability of life stress and PF-coping to predict positive affect.

Therefore, the necessity remains to investigate coping and positive affect in a general population, using measures that assess affect, that have adequate psychometric properties; that is, high reliability and validity estimates. The results from this study will build upon previous literature in the domains of stress, coping, and affect.

Rationale for Levels of Life Stress as a Moderator Variable

This thesis proposes something unique: life stress may be deemed a moderator variable. Lazarus has stated that the stress literature has provided two main analytic categories for stress (high and low) and three distinctions known as harm, threat, or challenge (1993). Much attention has been given to factors that moderate the relationship between life stress and illness (Holahan & Moos, 1985). Additionally, coping has been described as a moderator variable (Smith et al., 1990). However, it has not been clearly specified in the literature that levels of life stress could play a moderating role between coping and affect. Furthermore, Johnson and Sarason (1979) recommend the identification of moderator variables related to life stress. Alternatively, it is proposed that life stress may be considered a *moderator variable* since it affects "the nature, the direction, or the strength of a relation" between a predictor (PF-coping) and a criterion variable (positive affect; Smith et al., 1990, p. 360). This stage of the analyses may be considered exploratory, since little is known about the predictive ability of PF-coping on positive affect given level of life stress.

Rationale for Analyses on Gender

Yamasaki et al. (2006) found a positive relationship between positive affect and cognitive reinterpretation at Time 2 for men and Time 1 for women. Their results

indicated that the relationship between coping and positive affect is different for males and females. Males tend to use problem solving; whereas, females tend to use cognitive reinterpretation. Therefore, the authors suggest that the results from their study indicate the importance of testing the relationship between positive affect and coping by gender.

Purpose and Hypotheses

The purpose of this study is to determine whether PF-coping provides a significant increase in positive affect. The goal of the first part of the study is to assess the psychometric properties of two of the measures used in this study. The goal of the second part of the study is to determine if level of life stress may be considered a moderator variable. Firstly, it is hypothesized that after controlling for life stress levels, PF-coping will predict positive affect over and beyond that afforded by life stress. Secondly, life stress will serve as a moderator variable in terms of the predictive value of PF-coping on positive affect. It is predicted that when participants utilize PF-coping, the higher the score on the life stress measure, the higher the positive affect scores. There are three predictions related to this study: (a) given low levels of life stress, PF-coping will be negatively related to positive affect, (b) given moderate to high levels of life stress, PF-coping will be positively related to positive affect, and (c) given high levels of life stress, PF-coping will be positively related to positive affect to a greater degree than the other levels of life stress.

Method

Participants

This study used a convenience sample consisting of undergraduate San Jose State University (SJSU) students who were enrolled in a General Psychology course (see Table 1).

Table 1

Descriptive Statistics for Demographic Variables

Variable		*N*	%
Demographic Variables			
Gender	Female	132	58%
	Male	96	42%
Age	18 to 25	200	87%
	26 to 35	20	9%
	36 to 45	4	2%
	46 to 55	2	1%
	56+	2	1%
Ethnicity	African American	7	3%
	Asian/Pacific Islander	56	25%
	Caucasian	104	45%
	Hispanic/Latin American	42	18%
	Other	17	7%
	Missing Data	3	1.3%

Note. $N = 229$. Missing one data point on both gender and age.

The demographic survey indicated that the sample was composed of 58% female and 42% male, with 87% of the sample between the ages of 18 and 25, 9% of the sample between 26 and 35, 2% over the age of 36, and the remaining 2% over the age of 46. The majority of the participants were of European descent or Caucasian (45%), with 25% Asian or Pacific Islander, 18% Hispanic or Latin American, 7% Other, 3% African American, and approximately 1% missing data on ethnicity. The "Other" category sometimes included students with two or more ethnic categories, such as African American and Hispanic, as well as students who did not find it amenable to categorize themselves into one of the groups listed. Of the 232 questionnaires administered, a total of 229 were kept in the analyses. Three of the questionnaires were excluded from analyses due to excessive missing data (with $> 51\%$ of data missing).

After obtaining Institutional Review Board approval (see Appendix A), the researcher obtained permission from undergraduate psychology professors to arrive at the classroom during the last 10 minutes of the class session to administer a battery of surveys to those who were interested in participating. Surveys were completed and returned to the researcher during that time. It was the instructor's discretion whether or not to offer optional extra credit for participating in the study. The final number of participants well exceeds the number required to achieve a power of .80, assuming a medium effect size and an alpha level of .05 (i.e., $n > 134$; Cohen, 1992). Participants were issued a consent form along with three questionnaires described in the apparatus section.

Apparatus

Three self-report inventories and three demographic questions, resulting in a total of 83-items, were used in this study. Measures include: the Social Readjustment Rating Scale, the Ways of Coping Questionnaire (PF-coping subset), and the Positive and Negative Affect Schedule. The following are discussed at length in this section.

1. The Social Readjustment Rating Scale (SRRS; Holmes & Rahe, 1967) is a 43-item self report inventory measuring life events experienced during the previous 12-month period. For the purposes of this study, some of the items were updated to reflect current wording via Miller and Rahe's (1997) study, and one item was omitted, resulting in a 42-item survey. Item number 20 from the Miller and Rahe scale, "Mortgage or loan greater than $10,000" was changed to "Assumed a mortgage" to be consistent with current times, and item number 37, "Mortgage or loan less than $10,000," was deleted. Although there may be a considerably greater amount of stress associated with a larger mortgage than a smaller one, the sample used in this study was college students, who are primarily between the ages of 18 and 25 years old, and less likely to hold a mortgage. Items 6, 8, 13, 23, and 27 were further updated to reflect the item labels reported in Scully, Tosi, & Banning's study (2000).

Life stressors are checked off the list if the participant has experienced the event. Example items include: "Divorce," "Personal injury or illness," and "Marriage." Each of the life change events receives consensual weighting quantifying the amount of change involved in the event (Holahan & Moos, 1985). For instance, on a scale from 1 to 100,

the "Death of a close family member" received a weight of 63. Concerning internal validity, Pearson's coefficients of correlation range from .82 to .97 (Holmes & Rahe).

2. The Ways of Coping Scale (WOC; Folkman & Lazarus, 1988) is a 66-item self-report inventory that assesses 8 factors of coping on a 4-point Likert-type scale (0= does not apply or not used, 3 = used a great deal). For the purposes of this study, only PF-coping items, which were reprinted with permission, will be issued to participants, resulting in a scale yielding a total of 19 items. Using Turner-Cobb and Steptoe's model of PF-coping, the subscales consist of planful problem solving, positive reappraisal, and seeking social support (1998). However, item number 17 reflected an accidentally duplicated problem solving item, which was subsequently deleted from analyses. Therefore, the item, "Came up with a couple of different solutions to the problem," was omitted, yielding a PF-coping scale of 18 items.

Sample items include: *planful problem solving*, "I made a plan of action and followed it"; *positive reappraisal*, "Rediscovered what is important in life"; *seeking social support*, "Talked to someone to find out more about the situation." In order to detect whether coping differs in variability vs. stability, the factors were intercorrelated with coefficients ranging from -.04 to .47. These correlations, according to Folkman and Lazarus, are higher than coefficient alphas reported for most other coping scales. The authors additionally report that the items have face validity because they are methods that individuals have reported utilizing to cope with the demands of stressful situations.

3. The Positive and Negative Affect Schedule (PANAS; Watson, Clark, & Tellegen, 1988) is a 20-item adjective checklist measuring affect and emotions with 10 positive affective (PA) and 10 negative affective (NA) items, and was reprinted with permission. Adjectives are rated on a 5-point Likert-type scale (1 = very slightly or not at all, 5 = extremely). The PA scale includes adjectives, such as "Enthusiastic," "Excited" and "Interested." NA item examples are, "Afraid," "Irritable," and "Distressed." Coefficient alphas reflect a high degree of internal consistency, ranging from .86 to .90 for PA and from .84 to .87 for NA. Discriminant validity is consistently low, ranging from -.12 to -.23; therefore, the scales share approximately between 1 and 5% of their variance. Test-retest reliability was measured every week for 8 weeks and shown to be stable at every time frame. Alpha reliabilities for the PANAS, PA and NA scales were .86 and .87, respectively, and the correlation between the scales was -.09. Scale validity was assessed by factor analysis. It was found that the PANAS scales are highly correlated with convergent correlations ranging from .89 to .95, whereas discriminant correlations are quite low, ranging from -.02 to -.18.

Design

This study analyzed continuous data in a correlational design. There are two independent variables: *life stress* and *problem-focused coping*. Life stress was scored on a continuum between 11 and 1466. Life change units (LCUs) were scored according to Miller and Rahe's (1997) scaling weights based on their 1995 data. Life stress was measured in Life Change Units (LCUs), which are summed scores from the checklist. Ranges of life stress can be defined as low, medium, and high life stress, where low

= 0 to 149, medium = 150 to 299, and high = 300 or more LCUs.

Problem-focused coping consists of three factors: planful problem solving, positive reappraisal, and seeking social support. Planful problem solving was comprised of 6-items measured on a continuum between 3-18 points. It should be noted that one of the items was deleted from the study, resulting in 5-items. Positive reappraisal consisted of 7-items, each on a continuum between 3-21 points; and seeking social support was composed of 6-items, measured on a continuum between 3-18 points.

There are two dependent variables (analyzed separately) in this study, *positive affect* and *negative affect.* Both positive and negative affect were scored on a continuum between 10 and 50 points.

Procedure

SJSU undergraduate psychology students were issued a questionnaire packet containing a consent form, a demographic survey, and three self-report inventories. The surveys were completed in the classroom and returned to the researchers. The packet included: the SRRS, the PF-coping scale, and the PANAS inventories.

Students interested in participating in the study were informed that they might participate in the study, but that they could withdraw at any time. If the students agreed to participate, they were asked to complete a consent form. They were told that (a) they will complete measures that concern how they feel, (b) who will be conducting the study, and (c) approximately how long it will take to participate in the study (10-15 minutes).

Debriefing included informing the participants of the purpose of the study, the independent and dependent variables under investigation, and the anticipated results.

Participants who were interested in the findings of the study were given the option to obtain a debriefing form with the investigators contact information in case they were interested in the results of the study. Subsequently, data was coded, inspected for errors, and analyzed.

Results

Data was prepared by logging it in, inspecting for errors, and checking for accuracy; there were no negatively worded items. Both independent and dependent variables were treated as continuous. Descriptive statistics were calculated on measures of life stress, PF-coping (composite score), and positive and negative affect (composite scores). Afterwards, descriptive statistics were run on the categorical subdomains of PF-coping: planful problem solving, positive reappraisal, and seeking social support.

The statistical procedures used for inferential analyses were multiple and linear regression. First, a multiple regression was conducted on life stress, PF-coping, and positive affect. Second, linear regression analyses were conducted on the predictor and criterion variables. Afterwards, analyses were run on the predictor variables and negative affect. Last, post hoc analyses on the PF-coping subfactors and gender were conducted.

In the following section, and before inferential analyses will be considered, the psychometric properties of the coping scale and the PANAS will be investigated.

Psychometric Analysis of Scale Properties

In order to assess the psychometric properties of the scales used in the study, correlational analyses, factor analyses, internal consistency reliability, and concurrent criterion related validity analyses were conducted on the PF-coping scale and the

PANAS. This portion of the study addresses the first objective, with the purpose of obtaining support for the psychometric properties of the two scales based on this particular sample.

Correlations of Scale Items

PF-Coping. Bivariate correlational analyses were conducted on the 18-item PF-coping scale and the PANAS in order to determine the relationship among scale items and to assess initial scale reliability and validity. Correlation analyses were initially conducted on the 18-item PF-coping scale in order to determine the relationship among the items. Correlation analyses conducted on the PF-coping measure indicated that means ranged from .53 to 2.20; with *problem solving* from 1.46 to 1.92; *social support* from .53 to 2.20; and *positive reappraisal* from .76 to 2.02. Standard deviations ranged from .93 to 1.13, indicating moderate to high variability.

Problem solving item intercorrelations showed low to moderate positive relationships, which is expected since they are presumably measuring the same construct. Correlations ranged from -.01 to .48. Average correlations tend to be approximately $r = .27$. However, pfprob1 and pfprob4 were nonsignificant and negatively correlated ($r = -.01$, $p > .05$), indicating a possible misperception in the wording of the items.

Social support items tended to indicate low positive relationships. Correlations ranged from $r = .07$ to $r = .45$. Average correlations tend to be about $r = .20$. However, pfsocs1 and pfprob4 were negatively correlated ($r = -.02$, $p > .05$), which is what is expected since they are measuring unrelated aspects of the same construct.

Positive reappraisal item intercorrelations indicated low positive relationships among items, which is expected since they are all measuring positive reappraisal. Item correlations ranged from $r = .13$ to $r = .52$. Average correlations were approximately, $r = .22$.

Affect. Correlation analyses conducted on the 20-item affect measure (PANAS) indicated that means ranged from 1.91 to 3.81 with *positive affect* from 3.22 to 3.81 and *negative affect* from 1.91 to 3.31. Standard deviations ranged from 1.01 to 1.40, with posaff1, "Distressed," indicating the lowest amount of variability ($SD = 1.01$), and negaff10, "Afraid," indicating the greatest ($SD = 1.40$).

Positive affect items indicated moderate to high positive interrelationships, with average correlations at $r = .41$. This is expected since the items are measuring the same construct. Values ranged from $r = .19$ to $r = .58$. Negative affect-item intercorrelations indicated moderate positive relationships among items, with average correlations around $r = .32$. Values ranged from $r = .18$ to $r = .58$.

Correlations between positive and negative affect items displayed negative values, which is what is expected since they are measuring opposing constructs. Correlations ranged from $r = -.18$ to $r = .21$.

In summary, intercorrelations among positive and negative affect items correlated well, and typically produced significant positive relationships at $p < .001$. Correlations between positive and negative affect items typically correlated weakly or negatively, since they reflect different constructs. Correlational analyses for both the PF-coping scale and the PANAS supported initial scale reliability and validity.

Factor Analyses

PF-Coping. A forced 3-factor principle components analysis was conducted on the 18-item PF-coping measure in order to assess the factor structure as compared with Turner-Cobb and Steptoe's 1998 study. Confirmatory analyses were conducted since there are theoretical explanations for the items prior to analysis (the WOC scale has been shown to be reliable and valid). Three dimensions: problem solving, social support, and positive reappraisal have been shown to reveal underlying processes of PF-coping. Oblique rotations were employed since prior research has indicated that the factors should be correlated. Secondly, a forced 3-factor analysis with varimax rotation was employed as a check, and found to be a more promising rotation method to rely on for interpretation. The decision rule for evaluation was based on Tabachnick and Fidell's (2007) recommendation that coefficients with loadings > .33 be treated as meaningful.

Results of the principle components analysis with varimax rotation yielded eigenvalues greater than one comprised of a 3-factor solution explaining 45.75% of the total variance. This suggests a solution of moderate strength. Factor 1 explained 27.40% of the variability, 9.40% of the variability was explained by Factor 2, and 8.06% of the variability was explained by Factor 3. A scree plot supported the three-factor solution with Factors 1, 2, and 3 prior to the point of inflection.

The factor matrix after rotation indicated a 3-factor solution with loadings on Factor 1 ranging from .42 to .73, loadings on Factor 2 ranging from .47 to .74, and loadings on Factor 3 ranging from -.47 to -.80. It is not clear why this method of rotation indicated negative values. Items were checked for negative wording, but exhibited only

positive wording. It was initially assumed that the factor was inversely related to the other factors. Method artifact was considered, but determined not to be the case. After double-checking with another method of rotation (varimax), Factor 3 obtained positive values.

Factor 1 was composed of primarily planful problem solving items with the highest values being items pfposr3, pfprob2, and pfposr1 (.73, .73, and .63), respectively. Factor 2 was composed of social support items with pfsocs1, pfsocs5, and pfsocs4 obtaining the highest loadings (.74, .71, and .69). Factor 3 was composed of positive reappraisal items with negatively valenced loadings: pfposr7, pfposr4, and pfposr5 obtaining the highest loadings (-.80, -.77, and -.77).

Secondly, a forced 3-factor principle component analysis with varimax rotation was conducted on the 18-item scale as a check and yielded improved outcomes for Factor 3, but similar overall results (see Table 2). Results of the principle components analysis with varimax rotation yielded eigenvalues greater than one comprised of a 3-factor solution explaining 45.75% of the total variance, which is a moderately strong solution. The three factors obtained the same percentage of variance as in the first analysis, with Factor 1 explaining 27.40%, Factor 2 (9.39%), and Factor 3 (8.96%) of the variability. The scree plot similarly supported a three-factor solution with Factors 1, 2, and 3 prior to the point of inflection.

The factor matrix after rotation indicated a 3-factor solution with loadings on Factor 1 ranging from .41 to .73, loadings on Factor 2 ranging from .46 to .71, and loadings on Factor 3 ranging from .51 to .76.

Table 2

Factor Loadings in the Rotated-Factor Matrix for the Problem-Focused Coping Scale

		Factor Loading		
Item	Item Label	Factor 1	Factor 2	Factor 3
pfprob2	Acted on plans.	.73		
pfposr3	Defined experience positively.	.71		
pfposr1	Inspired to creativity.	.64		
psprob5	Doubled my efforts.	.60		
pfprob3	Modified the situation.	.49		
pfprob4	Drew on experience.	.48		
pfprob1	Concentrated on goals.	.40		
pfsocs1	Inquired about situation.		.71	
pfsocs5	Asked advice.		.69	
pfsocs4	Enlisted concrete help.		.67	
pfsocs6	Talked about feelings.		.62	
pfsocs2	Accepted sympathy.		.49	
pfsocs3	Got professional help.		.46	
pfposr5	Realized what matters.			.76
pfposr7	Prayed about it.			.76
pfposr4	Found new faith.			.76
pfposr6	Altered my behavior.			.58
pfposr2	Changed and improved.			.50

Note. Listwise deletion was used to handle missing data, $N = 224$. From "The Ways of Coping Questionnaire," by S. Folkman and R. S. Lazarus, Menlo Park, CA: Mind Garden. Copyright 1988 by Mind Garden. Adapted with permission.
Values < .33 were suppressed.

Factor 1 was composed of planful problem solving items with pfprob2, pfposr3, and pfposr1 ("Acted on plans," "Defined experience positively," and "Inspired to creativity") obtaining the highest loadings (.73, .71, and .64), respectively. Factor 2 was composed of social support items with pfsocs1, pfsocs5, and pfsocs4 ("Inquired about situation," "Asked advice," and "Enlisted concrete help") with high loadings, (.71, .69, and, .68). Factor 3 was composed of positively valenced positive reappraisal items with high loadings on pfposr5, pfposr7, and pfposr4 (.76, .76, and .76). Item labels for high loading positive reappraisal items are: "Realized what matters," "Prayed about it," and "Found new faith."

Two of the three factors with the highest loadings were supposed to be reflective of Factor 3 (positive reappraisal), but instead, loaded onto Factor 1. The item, pfposr3, "Defined experience positively," may have reflected a misinterpretation of the meaning of the item by participants; and pfposr1, "Acted on plans" may have loaded onto the factor since it reflected the notion of "doing" something active to solve the problem (which is the underlying meaning behind Factor 1, planful problem solving).

Complex items emerged in this analysis in which pfprob3, "Modified the situation," loaded onto Factors 1, 2, and 3 (.49, .33, and .38), respectively. This item is intended to reflect planful problem solving behaviors, but may also denote a change in cognitions related to the situation. Another complex item, pfposr6, "Altered my behavior," loaded onto both Factor 2 and 3 (.39 and .58). The item may have been interpreted to mean that talking with someone effected a change in one's approach to the situation.

In summary, factor analyses on the PF-coping items supported the three-factor model proposed by Turner-Cobb and Steptoe (1998). Factors were demonstrated to be composed of planful problem solving as Factor 1, seeking social support as Factor 2, and positive reappraisal as Factor 3. Two of the positive reappraisal (pfposr3, pfposr1) items loaded onto Factor 1 probably due to the similarity of the items. However, to keep the integrity of the psychometric properties of the scale, both positive reappraisal items remained in the analysis.

Affect. A forced 2-factor principle component analysis was conducted on the 20-affect items from the PANAS in order to confirm prior expectations about the factor structure of the items on this sample (see Table 3). To explain, two dimensions: positive affect and negative affect are hypothesized to reveal underlying processes of affective states. The cut off point for strong factor loadings was established at .33 (Tabachnick & Fidell, 2007). Varimax rotation was conducted, for ease of interpretability, and found to yield consistent results with prior research (Watson et al., 1988).

Eigenvalues greater than one indicated a two-factor solution explaining 46.16% of the variance, suggesting a moderately strong solution. Factor 1 (positive affect) explained 24.44% of the variability, and Factor 2 (negative affect) explained an additional 21.72% of the variability. A scree plot supported the two-factor solution with Factor 1 and Factor 2 higher in the graph, and prior to the point of flattening.

Table 3

Factors in the Rotated-Factor Matrix for Positive and Negative Affect

		Factor Loading	
Item	Item Label	Factor 1	Factor 2
posaff4	Enthusiastic	.76	
posaff7	Inspired	.76	
posaff8	Determined	.73	
posaff5	Proud	.70	
posaff9	Attentive	.70	
posaff1	Interested	.68	
posaff10	Active	.66	
posaff2	Excited	.66	
posaff3	Strong	.64	
posaff6	Alert	.56	
negaff10	Afraid		.78
negaff4	Scared		.76
negaff2	Upset		.69
negaff8	Nervous		.67
negaff6	Irritable		.66
negaff1	Distressed		.66
negaff9	Jittery		.61
negaff7	Ashamed		.60
negaff3	Guilty		.56
negaff5	Hostile		.53

Note. Listwise deletion was used to handle missing data, $N = 229$. From "Development and Validation of Brief Measures of Positive and Negative Affect: The PANAS Scales," by D. Watson, L. A. Clark, and A. Tellegen, 1988, *Journal of Personality and Social Psychology, 54,* p. 1070. Copyright 1988 by the American Psychological Association. Reprinted with permission. Values < .33 were suppressed.

The factor matrix after rotation resulted in a 2-factor solution with loadings on Factor 1 ranging from .56 to .76 and loadings on Factor 2 from .53 to .78. Factor 1 was composed of positive affect items, with posaff4, posaff7, and posaff8 ("Enthusiastic," "Inspired," and Determined") reflecting the highest loadings (.76, .76, and .73), respectively. Factor 2 is composed of a number of negative affect items with negaff10, negaff4, and negaff2 ("Afraid," "Scared," and "Upset") obtaining the highest loadings (.78, .76, and .69). However, negaff8, "Nervous," was indicated as a complex factor, loading on both factors, and may have been interpreted as synonymous with "Excitement."

In summary, the principle components analysis conducted on this sample demonstrated that the PANAS was composed of two factors: positive and negative affect.

Reliability Analyses

PF-Coping. Reliability analyses were conducted on PF-coping and positive and negative affect; the subscales for PF-coping were planful problem solving, social support, and positive reappraisal (See Table 4). Cronbach's alpha reliability analyses were employed, since it is a measure of how internally consistent a scale is, and it is a precursor to validity analyses. Reliability for the 18-item PF-coping measure was satisfactory with planful problem solving achieving a Cronbach's alpha of .62 because one of the items was accidentally duplicated in lieu of a different item, and was subsequently dropped from all analyses. It is expected that a higher alpha would have resulted if all of the items had been included, since the strength of an alpha coefficient, is in part, a result of the number of items in a scale. Social support obtained an alpha of .70,

and positive reappraisal, .76, indicating high internal consistency reliability as per Nunally's recommendations of internal consistency reliability scores at .70 or above (1978).

Affect. Reliability analyses were also conducted on the affect items, with subscales composed of positive and negative affect. Positive affect items obtained an alpha score of .88 and negative affect items obtained a .85 alpha, which are alpha coefficients that are consistent with those obtained in Watson, Clark, and Tellegen's (1988) study. Finally, both the PF-coping scale and the PANAS have demonstrated a high degree of internal consistency reliability.

Concurrent Criterion Related Validity Analyses

Concurrent criterion related validity analyses were conducted on the PF-coping and affect items (See Table 4).

Table 4

Descriptive Statistics and Subscale Correlations

Variables	*Means*	*SD*	1	2	3	4	5
1. Problem Solving	1.71	.64	(.62)				
2. Social Support	1.58	.65	.38 **	(.70)			
3. Positive Reppraisal	1.53	.70	.55 **	.42 **	(.76)		
4. Positive Affect	3.46	.78	.39 **	.26 **	.41 **	(.88)	
5. Negative Affect	2.67	.83	.12	.25 **	.11	.09	(.85)

Note. Statistic in parentheses is Cronbach's alpha reliability coefficient;
Listwise $N = 229$.
$^{**}p < .01$.

Criterion related validity signifies that an item has a hypothesized association with a criterion, in this case, positive affect (Breakwell, Hammond, & Fife-Schaw, 2002). Concurrent validity relates to data on the predictor and criterion variables that were measured at the same point in time. Construct validity is concerned with the theoretical relationship of each factor. This may be assessed by observing the internal structure of a test, and is often analyzed from Cronbach's reliability estimates or factor loadings since a high alpha occurs when items correlate well with each other. Furthermore, "the internal structure of the items is assumed to reveal inter-item homogeneity" (Breakwell,

Hammond, & Fife-Schaw, p. 190). Hence, the following validity analyses also imply construct validity.

Concerning affect, it was expected that positive affect would be positively related to all measures of PF-coping, as was the case. Positive affect was most strongly related to positive reappraisal, $r = .41$, $p < .01$, $R^2 = .17$. That is, participants who scored higher on positive reappraisal also scored higher on positive affect. Positive relationships were also indicated for both planful problem solving, $r = .39$, $p < .01$, $R^2 = .15$ and social support, $r = .26$, $p < .01$, $R^2 = .07$. Positive reappraisal seemed to influence positive affect to a higher degree than any other PF-coping skill, followed by planful problem solving, and social support. Finally, a relationship exists between affect and PF-coping, and it may be concluded that problem-focused coping is an important coping style in increasing positive affect.

When comparing scale means of only PF-coping items, the most prominent relationship was indicated for positive reappraisal and planful problem solving ($r = .55$, $p < .001$). These coping styles signify strong positive relationships and a strong measure of effect size, $R^2 = .30$. It may be inferred that there is a relationship between the two coping styles such that the use of positive reappraisal may influence an increase in relying on planful problem solving, or vice versa. The next highest means were positive reappraisal and social support, $r = .42$, $p < .001$, followed by planful problem solving and social support, $r = .38$, $p < .001$.

Negative affect indicated a nonsignificant relationship with planful problem solving and positive reappraisal ($r = .12$, $p > .05$ and $r = .11$, $p > .05$.), respectively.

This is expected since PF-coping has been shown to increase positive affect. Of interest, a significant relationship was demonstrated between negative affect and social support, $r = .25$, $p < .01$, $R^2 = .06$. This finding was consistent with previous literature that displayed social support results as mixed. One explanation is that persons high in negative affect may seek out social support and use it as a coping skill. Subsequently, it may be inferred that those who are seeking social support are not receiving the type of support they need, which may influence an increase in negative affective states. It may additionally be inferred that those relying primarily on social support might be ruminating about the problem instead of attempting to solve it.

Finally, it may be concluded that PF-coping is a valuable coping style that is positively related to positive affect and is generally not related to negative affect, except in the case of social support. Results of the aforementioned validity analyses denote construct validity, since they support the theoretical relationship of PF-coping and positive affect. In summary, results of this portion of the study have supported the reliability and validity of the PF-coping scale and the PANAS for this sample.

Inferential Analyses

This portion of the study pertains to the second objective and addresses both hypotheses under investigation. Descriptive statistics were conducted on the predictor variables and positive and negative affect, and are reported in Table 5.

Table 5

Descriptive Statistics for Predictor Variables and Positive Affect

Variable	*M*	*SD*
Predictor Variables		
Life Stress	410.97	187.44
Problem-Focused Coping	30.34	10.26
Criterion Variable		
Positive Affect	34.50	7.74
Negative Affect	26.60	8.21

Note. $N = 229$.

Student life stress scores (after weightings were calculated) ranged from 65 to 956 LCUs, with a median of 380.00 ($M = 410.97$, $SD = 187.44$). This reflected a wide degree of variability among students, with average students scoring on the high life stress side of the continuum. High life stress was a score equivalent to or over 300 LCUs.

Scores for the PF-coping measures ranged from 9 to 55 ($M = 30.34$, $SD = 10.26$), suggesting that most of the students utilized PF-coping strategies. Positive affect scores ranged from 13 to 50 ($M = 34.50$, $SD = 7.74$). Negative affect scores were also measured and ranged from 10 to 48 ($M = 26.60$, $SD = 8.21$). Therefore, students tended to report higher levels of positive affect and lower levels of negative affect.

Correlational Analyses

Pearson correlational coefficients between life stress, problem-focused coping, and positive affect are presented in Table 6.

Table 6

Pearson Correlations of Predictor Variables and Positive Affect

Variable	1	2
1. Life Stress		
2. Problem-Focused Coping	.22 **	
3. Positive Affect	.01	.44 **

Note. Listwise deletion ($N = 229$).
**$p < .001$.

Problem-focused coping indicated a significant positive relationship with positive affect, $r = .44$, $p < .001$. Students who used PF-coping also reported higher positive affect. Life stress obtained a low significant relationship with problem-focused coping, $r = .22$, $p < .001$. However, life stress obtained a nonsignificant relationship with positive affect, $r = .01$, $p > .05$. Therefore, life stress is not related to positive affect. On the contrary, problem-focused coping plays a prominent role in predicting positive affect.

Hierarchical Multiple Regression Analysis on Positive Affect

In order to test the first hypothesis, that PF-coping will significantly predict positive affect after controlling for life stress, a hierarchical multiple regression was conducted. A hierarchical strategy was employed in order to control for variance related to life stress, so that whether a participant scored low or high on life stress, any variance accounted for in PF-coping will represent that variance beyond life stress in predicting positive affect. The predictor variables are life stress and PF-coping; the criterion variable is positive affect. In step one of the analysis, life stress was entered into the equation; in step two of the analysis, PF-coping was entered.

Table 7 displays correlations between the variables, standardized regression coefficients (β), the semipartial correlations (sr^2), R^2, and change in R^2 (ΔR^2).

Table 7

Hierarchical Multiple Regression by Steps, Predicting Positive Affect From Life Stress and Problem-Focused Coping

Predictor Variables	*r*	β	sr^{2a}	R^2	ΔR^2
Step 1:					
Life Stress	.22 **	.01	.01	.00	.00
Step 2:					
PF-Coping	.44 **	.46 **	.45 **	.20 **	.20 **

Note. All predictors accounted for 20% of the variance, $R = .45$, $R^2 = .20$, $R^2_{adj} = .19$, $F(2, 226) = 27.08$, $p < .001$.

a. Squared semi-partial correlation coefficient indicating unique contribution of variance.

** $p < .01$.

In step one of the analysis, and in order to control for levels of life stress, life stress was entered into the equation. Life stress did not contribute towards the variance in positive affect, $R = .00$, $R^2 = .005$, $R^2_{adj} = -.004$, $F(1,227) = .006$, $p > .05$. Therefore, life stress did not significantly predict positive affect. Furthermore, an examination of the beta weight, which represents the contribution of each predictor variable to the relationship for that predictor, indicated a low, nonsignificant contribution, $\beta = .01$, $p > .05$. In addition, the correlation between life stress and positive affect was low and nonsignificant, $r = .01$, $p > .05$, meaning that life stress is an unimportant predictor in terms of the contribution to positive affect. This finding corresponds to those of Diwan

et al. (2004) that indicated an increased number of stressful life events and female gender was associated with lower positive affect. On a similar note, the sample in this study was mostly female, and most of the participants indicated life stress at the highest levels.

In step two of the analysis, and in order to test the first hypothesis, PF-coping was entered into the equation. The overall analysis indicated that all of the variables accounted for 20% of the variability in positive affect, $R = .45$, $R^2 = .20$, $R^2_{adj} = .19$, $F(2, 226) = 27.98$, $p < .001$. That is, all the variables together accounted for a significant amount of positive affect. However, upon inspection of the measure of effect size (R^2) from the first step, it is apparent that most of the variance in positive affect is accounted for by PF-coping.

After controlling for life stress, PF-coping provided a significant incremental effect in predicting positive affect, $\Delta R^2 = .20$, $F(1, 226) = 55.95$, $p < .001$. An examination of the beta weight for that predictor indicated a positive, significant contribution, $\beta = .46$, $p < .001$. This suggests that students who report using PF-coping also report higher levels of positive affect. The semipartial correlation (sr^2) was also examined since it accounts for unique variance that is a more conservative estimate of the individual contribution of the variable (than is the beta weight) because it represents the contribution of the predictor to the total variance in the criterion variable. Problem-focused coping, $sr^2 = .45$, $p < .01$ contributed a significant amount of unique variance to positive affect.

Linear Regression Analyses on Levels of Life Stress and Positive Affect

In order to test the second hypothesis, that life stress acts as a moderator variable, three bivariate linear regression analyses were conducted on low, medium, and high levels of life stress, PF-coping, and positive affect.

The first prediction examined low life stress, and suggested that low levels of life stress (beween 0 and 149 LCUs), and the use of problem-focused coping would be indicative of a negative relationship with positive affect. That prediction was not supported, $R = .32$, $R^2 = .10$, $R^2_{adj} = .01$, $F(1, 10) = 1.13$, $p > .05$. Low levels of life stress and PF-coping did not predict positive affect. It might be inferred that those participants with too low levels of life stress, do not feel challenged enough in their life, are depressed, or are experiencing one or more grief-related life events.

The second prediction suggested that moderate levels of life stress (between 150 and 299 LCUs) and problem-focused coping would significantly predict positive affect. This prediction was supported, $R = .54$, $R^2 = .29$, $R^2_{adj} = .28$, $F(1, 59) = 23.95$, $p < .001$. In this model, 29% of the variance in positive affect was accounted for by PF-coping.

The third prediction intimated that high levels of life stress (300+ LCUs) and problem-focused coping would predict positive affect the most. This prediction was not supported, $R = .39$, $R^2 = .15$, $R^2_{adj} = .15$, $F(1, 154) = 28.01$, $p < .001$. In this model, 15% of the variance in positive affect was accounted for by problem-focused coping. However, it was unexpected that moderate life stress ($R^2 = .29$) would account for more of the variance in positive affect than high life stress ($R^2 = .15$) since former research indicated that PF-coping is adaptive in very stressful situations. It may be surmised that

students in the high stress group were simply overwhelmed with the number of stressors that they were experiencing and/or that they were experiencing unchangeable stressors, which hold high LCU values on the life stress scale.

In summary, hypothesis two was partially supported. Different levels of life stress predicted positive affect differently for students reporting using problem-focused coping. However, the relationship did not appear as was predicted. Low levels of life stress did not predict positive affect. However, students who were experiencing either moderate or high levels of life stress, obtained the highest positive affect scores. Finally, students who reported moderate life stress obtained higher positive affect scores than those who confirmed high life stress.

Analyses on Negative Affect

In order to further understand the relationship between life stress, PF-coping and negative affect, subsequent analyses were conducted. The same analyses conducted on the predictors and positive affect were also executed on negative affect. First, a hierarchical multiple regression analysis was conducted, followed by three linear regression analyses.

Hierarchical Multiple Regression Analysis on Negative Affect

A hierarchical multiple regression analysis was conducted in order to understand the relationship between life stress, PF-coping, and negative affect. A hierarchical strategy was selected in order to control for life stress.

In step one of the hierarchical multiple regression analysis, life stress was entered into the equation. Life stress was a significant predictor and accounted for 8% of the

variance in negative affect, $R = .28$, $R^2 = .08$, $R^2_{adj} = .08$, $F(1,227) = 19.92$, $p < .001$. Therefore, life stress played a significant role in predicting negative affect. This was expected since most of the sample included participants in the high stress range, and without accounting for PF-coping, negative affect was predominant. Furthermore, an examination of the beta weight, which represents the contribution of each predictor variable to the relationship for that predictor, indicated a low, significant contribution, $\beta = .28$, $p < .001$. Therefore, life stress was a significant predictor of negative affect.

In step two of the analysis, PF-coping was entered into the equation. The overall analysis indicated that the predictor variables together accounted for 9% of the variance in negative affect, $R = .31$, $R^2 = .09$, $R^2_{adj} = .09$, $F(2, 226) = 11.66$, $p < .001$. That is, all of the predictor variables accounted for a significant amount of negative affect. However, once life stress was taken into account, PF-coping did not provide a significant incremental effect in predicting negative affect, $\Delta R^2 = .01$, $F(1, 226) = 3.20$, $p > .05$. An examination of the beta weight for that predictor indicated a nonsignificant contribution, $\beta = .12$, $p > .05$. This suggests that students who do not use PF-coping also report higher levels of negative affect.

Linear Regression Analyses on Levels of Life Stress and Negative Affect

In order to examine the predictive ability of life stress levels and PF-coping on negative affect, three linear regression analyses were conducted. The first regression was conducted on the low stress group, PF-coping, and negative affect. Low life stress was evidenced as a nonsignificant predictor of negative affect, $R = .40$, $R^2 = .16$, $R^2_{adj} = .08$, $F(1, 10) = 1.90$, $p > .05$. Therefore, low life stress did not predict negative affect.

In the second analysis, the moderate stress group was examined with PF-coping and negative affect. Moderate life stress was indicated as a nonsignificant predictor of negative affect, $R = .25$, $R^2 = .06$, $R^2_{adj} = .04$, $F(1, 59) = 3.79$, $p > .05$. In the third analysis, the high stress group was examined with PF-coping, and indicated a nonsignificant relationship with negative affect, $R = .09$, $R^2 = .01$, $R^2_{adj} = .002$, $F(1, 154) = 1.39$, $p > .05$. Therefore, whether low, medium, or high life stress was experienced, none of the stress levels significantly predicted negative affect.

Post Hoc Analyses

Post hoc analyses were conducted on the three factors of PF-coping: planful problem solving, positive reappraisal, and seeking social support in order to understand the relationships of each subfactor with positive affect. Secondary post hoc analyses were conducted on the predictor and criterion variables by gender.

PF-Coping Subfactors. Descriptive statistics and correlations were conducted on the 3 subfactors of PF-coping (planful problem solving, positive reappraisal, and seeking social support) and are reported in Table 8.

Table 8

Means, Standard Deviations, and Correlations of Problem-Focused Coping Subfactors and Positive Affect

Variable	*M*	*SD*	1	2	3
1. Planful Problem Solving	8.51	3.22			
2. Positive Reappraisal	9.25	4.17	.59 **		
3. Seeking Social Support	9.44	3.89	.37 **	.42 **	
4. Positive Affect	34.50	7.74	.38 **	.41 **	.25 **

Note. Listwise deletion ($N = 229$).
**$p < .001$.

In terms of problem-focused coping, students reported the highest scores in seeking social support, $M = 9.44$ ($SD = 3.89$), followed by positive reappraisal, $M = 9.25$ ($SD = 4.17$), and problem solving, $M = 8.51$ ($SD = 3.22$). Seeking social support was the more often utilized strategy, which is viable, since the sample was slightly higher in females, who are generally known to score higher in seeking social support. Additionally, a review of stress and coping articles conducted by Skinner and Zimmer-Gembeck (2007) suggested that seeking social support was among the most commonly used strategies.

Correlations between the 3 factors and positive affect produced significant positive relationships between positive reappraisal and positive affect, $r = .41$, $p < .001$, followed by problem solving, $r = .38$, $p < .001$, and seeking social support, $r = .25$,

$p < .001$. This was consistent with the item correlations in the psychometric validation portion of this study as well as findings from Yamasaki et al. (2006). It is well-documented in this study that positive reappraisal results in higher levels of positive affect than the other two styles of PF-coping.

Intercorrelations between the 3 factors indicated moderate to strong positive relationships among the factors for problem solving and seeking social support, $r = .59$, $p < .001$, followed by positive reappraisal and seeking social support, $r = .42$, $p < .001$, and problem solving and positive reappraisal, $r = .37$, $p < .001$. Problem solving and seeking social support indicated the highest correlation, conveying that those who scored higher in problem solving also utilized seeking social support as an adaptive strategy to life stress.

Gender. Bivariate linear regression analyses were conducted on each gender so that the predictive ability of males vs. females, PF-coping, and positive affect could be examined. Results of the analysis with males indicated a significant relationship, $R = .60$, $R^2 = .36$, $R^2_{adj} = .34$, $F(2, 93) = 25.96$, $p < .001$. Male's level of life stress and use of problem-focused coping accounted for 36% of the variance in positive affect. Another linear regression analysis was conducted on female students and indicated a significant relationship, $R = .35$, $R^2 = .12$, $R^2_{adj} = .11$, $F(2, 129) = 8.94$, $p < .001$. Female's life stress and problem-focused coping accounted for 12% of the variance in positive affect.
In sum, male's use of PF-coping accounted for more variance in positive affect than female's use of PF-coping. In keeping with former literature, this implies that males use

PF-coping more often than females (Folkman & Lazarus, 1980; Yamasaki & Uchida, 2006).

Discussion

The purpose of this study was to determine whether problem-focused coping provided additional value beyond levels of life stress in predicting positive affect. The present findings supported both hypotheses, and were consistent with previous research (Crowley et al., 2003; Ntoumanis & Biddle, 1998; Turner-Cobb & Steptoe, 1998). The goal of the first part of the study was to assess correlations, factor structure, and the reliability and validity of the PF-coping scale and the PANAS. Results of the factor analysis supported the 3-factor solution of the PF-coping scale in accordance with Turner-Cobb and Steptoe. Internal reliability and criterion related validity analyses supported the internal consistency and construct validity of the factors relevant to the WOC and PANAS measures.

The goal of the second part of the study was to determine whether distinct levels of life stress predict positive affect differently. The first hypothesis was supported and indicated that after controlling for life stress, PF-coping significantly predicted positive affect. That is, problem-focused coping provided a significant incremental effect in predicting positive affect. The semipartial correlation also indicated a meaningful amount of variance (.45) contributing to positive affect. These results signify the importance of problem-focused coping in increasing positive affect.

The second hypothesis posited that life stress could be considered a moderator variable in terms of coping and affect, and this hypothesis was partially supported.

That is, the level of life stress influences the degree that problem-focused coping is effective in increasing positive affect. However, the direction of the relationship between the different stress levels was not as predicted. Three linear regression analyses were run on students scoring in low, moderate, and high life stress groups. Students scoring in the moderate or high life stress groups were the primary focus of the second hypothesis with predictions that the higher the life stress, and the higher the PF-coping, the higher the positive affect. Therefore, the predictions proposed a linear relationship between level of stress and positive affect, with low stress at the low point of the continuum, followed by moderate, and finally, high levels of life stress at the highest point. However, results from the linear regressions indicated a more complex relationship: that resembling an inverted U-shaped curve not dissimilar from that which is represented by the Yerkes-Dodson Law.

To explain, low life stress obtained a low nonsignificant relationship (the lowest point on the graph); moderate life stress obtained the strongest relationship (the highest point on the graph); and high life stress obtained a strong relationship (appearing lower on the graph than moderate stress, but higher than low stress). A discussion concerning the findings on each stress level will follow.

Findings indicated nonsignificant results for the low stress students. These results may be related to the small sample size of that group (n = 12). One of the reasons that the group contained fewer participants was that the sample was composed of undergraduate college students, who are typically exposed to high levels of stress since

they have multiple exams and papers due at various times during the semester, and many additionally work full or part-time (Hennessee, 2003).

Another interpretation is that students who obtained low life stress scores were dealing with chronic, ongoing daily stressors, and that was the reason for their lack of positive affect. It may also be inferred that student's who obtained low levels of life readjustments, might be primarily relying on avoidant or emotion-focused coping. Emotion-focused coping has been evidenced to predict negative affect (Ntoumanis & Biddle, 1998). In addition, avoidant coping may be adaptive in the short-term; however, it has been shown to be a maladaptive coping choice in the long-term (Turner-Cobb & Steptoe, 1998). Since there is no resolution to the situation, avoidant coping inadvertently adds stressors to the situation.

Both moderate and high levels of life stress, and the use of PF-coping significantly predicted positive affect. However, it was not expected that students scoring in the moderate range of life stress would have higher positive affect scores than students with high life stress. In terms of moderate stress levels, it might be interpreted that those students obtained higher positive affect scores because they didn't have as many readjustments or life changes with which to be concerned. It might also be inferred that they were able to retain the feeling of being in control of their stressors; perhaps many of their life stressors were changeable in nature.

Findings on the high life stress group resulted in a significant prediction of positive affect; however, the strength of the relationship between PF-coping and positive affect for this group was not as strong as in the moderate life stress group. It may be

considered that students who obtained the highest levels of life stress, were overwhelmed with various readjustments such that they maintained lower levels of positive affect overall. They also may have experienced unchangeable life stressors, in which EF-coping would have been the predominate coping style. Furthermore, some of the highest ranking life stressors are unchangeable stressors (i.e., the death of a spouse or mate).

In the examples above, the situation is the focus of the explanation; the person may also be a premise for evaluating why levels of life stress may be higher or affect, lower. In this respect, a given individual may typically appraise a situation as more stressful, or they may react to stressful events with negative affective states, and thereby subjugate positive affect. In other cases, the situation may evoke negative states that serve as maintenance for their continuance. It may be interesting to consider person-related variables in future research.

Most importantly, within the stress and coping literature, there is an underlying and predominant emphasis on the notion of performance. Like the Yerkes-Dodson Law (1908), which demonstrates an optimal relationship between arousal and performance, there might be an optimal level of life stress and coping. When levels of life stress become either very low or very high, positive affect declines as negative affect increases. It may be inferred that those who are clinically depressed may fall into either the very low or high stress category. This study has demonstrated that moderate levels of life stress may be considered the most favorable condition in which PF-coping influences positive affect.

Findings on negative affect indicated the opposite results from those on positive affect. The hierarchical multiple regression on life stress, PF-coping, and negative affect indicated a significant contribution in predicting negative affect. This means that life stress predicted negative affect. This was expected since similar findings have been documented in the literature (Turner-Cobb & Steptoe, 1998). Additionally, the sample was comprised of college students, who are known to experience higher than average levels of stress. It may be inferred that students experiencing multiple life readjustments are more prone to express negative affective states. In addition, specific life stresses, such as job loss or the death of a family member may also serve to diminish an individual's capacity to experience positive affect.

In step two of the analysis, change in R^2 was evaluated on PF-coping in order to determine if problem-focused coping carried predictive value in negative affect. As was expected, PF-coping did not predict negative affect. Therefore, students who do not use PF-coping report higher levels of negative affect. It may be inferred that other styles of coping, such as avoidance or escape coping and emotion-focused coping serve to increase negative affect (Ntoumanis & Biddle, 1998). When life stressors occur, avoiding them may be useful in the short-term; however, in a cumulative manner, the stressors may snowball or increase to an unmanageable size, which may, in turn overwhelm the person.

Three linear regression analyses were conducted on life stress, PF-coping, and negative affect with all results indicating nonsignificance. This was expected, since in the hierarchical regression, PF-coping was entered into the equation at step two and did not significantly predict negative affect. In light of the aforementioned influence of

PF-coping on positive affect, it makes sense that regardless of the level of life stress, as long as one uses PF-coping, negative affect is diminished, while positive affect is enhanced.

Post hoc analyses on the PF-coping subscales indicated that planful problem solving and positive reappraisal resulted in a strong positive relationship, $r = .59$, $p < .001$. These findings were congruous with Yamasaki et al. (2006) in which significant positive relationships were detected between planful problem solving, cognitive reinterpretation, and positive affect. Similarly, results of the scale validation indicated strong factor loadings of two positive reappraisal items onto planful problem solving (Factor 1). The two items seemed to capture the notion of problem solving, although prior scale validation indicated them as positive reappraisal items (Folkman & Lazarus, 1988). It may be inferred that there is some overlap between positive reappraisal and planful problem solving since there is a connection between the *cognitions* evident in reappraisal and the *behaviors* utilized in problem solving. Another explanation is that the two coping styles work in conjunction with one another so that the employment of one requires the operation of the other.

Analyses on gender and coping confirmed prior research that males tend to rely on problem-focused coping more often, whereas females tend to use emotion-focused coping (Folkman & Lazarus, 1980; Yamasaki & Uchida, 2006). Finally, although the number of males who participated in this study was fewer than that of females, male's life stress and use of PF-coping accounted for more variance in positive affect than did females life stress and use of PF-coping.

Implications

Findings contribute support concerning the psychometric properties of the PF-coping scale and the PANAS. Although the PANAS has been demonstrated to be both reliable and valid, this study confirmed prior results on this sample. Concerning coping, prior research has shown that the WOC scale, and other coping measures have been limited in terms of validity estimates, with the WOC indicating face validity as one of the arguments that the scale is valid. Furthermore, Yamasaki et al. (2006) suggest that most of the coping measures lack validity data. Therefore, this study has added to the validity of the WOC for the PF-coping subset by showing the scale to be both reliable and valid, with high alpha coefficients for each of the subfactors, also indicating construct validity.

This study also contributes to the positive psychology literature by demonstrating that problem-focused coping provides additional value over and beyond levels of life stress in predicting positive affect. That is, whether one has moderate or high life stress, PF-coping predicts positive affect. On the contrary, when controlling for PF-coping, level of life stress predicts negative affect. The findings from this study indicate that positive reappraisal is the most important contributor to positive affect, followed by seeking social support, and planful problem solving.

Another implication of the study was that level of life stress could be viewed as a moderator variable. This study was, apparently, the first to assess life stress as a predictor variable and, ultimately, a moderator variable. In this respect, this study is, to the best of our knowledge, avant-garde. This study posits that it is the level of life stress

that moderates the relationship between PF-coping and positive affect. Individuals using PF-coping will experience a high level of positive affect if their level of stress is in the moderate or high range. Furthermore, levels of life stress obtained an inverted U-shaped curve, with the moderate level of stress obtaining the highest amount of positive affect.

Therefore, if one can attempt to moderate their level of life stress, by staggering the controllable events in their lives, or by intentionally delaying certain decisions that would increase their number of "changeable" life events, they may be able to manipulate the number of life stressors they have to address at a given time. For example, if an individual is currently dealing with a demanding life readjustment, it might be wise not to change other aspects of their lives, if at all possible, until they have adjusted to the challenging event. In this sense, restricting the number of life readjustments, may allow an individual to stay closer to the moderate level of stress side of the continuum, and thereby, obtain a higher level of positive affect.

On the contrary, when several "unchangeable" life events befall an individual in a brief period of time, it would be beneficial to, as soon as possible, intentionally employ problem-focused coping strategies since it is linked to positive affect (Crowley et al. 2003); whereas emotion-focused coping is associated with negative affect, and is typically automatically employed in uncontrollable situations. Furthermore, Yamasaki et al. (2006) suggest that increasing positive affect may result in healthier, adaptive conditions due to the enhancement of "more effective coping strategies" (p. 508).

Limitations of the Study

One of the limitations of this study is the ability to generalize the results to the US National population. This study included a convenience sample, which may be considered representative of the general university population. Some have argued that a sample of undergraduates across disciplines is generally reflective of the US population. Others have, on the contrary, argued that the student population does not adequately reflect the general population. In this sample, the degree to generalize the findings may be limited to the university population at San Jose State University, California with attitudes reflecting life events and coping styles of young adults, primarily between the ages of 18 and 25 years of age. A final limitation of the sample was that the college sample did not allow for an adequate number of students to represent the low life stress group. However, this limitation was congruent with the methodology employed, and not one easily amended in this study.

Another limitation is the use of survey methods to assess coping. Self-reports can be distorted by both social desirability and inaccurate recall (Ntoumanis & Biddle, 1998). Social desirability is typically a concern in survey research, but it was reduced by appropriate administration and instructions. Inaccurate recall was not controlled for, but may be further assessed in future studies by issuing a scale measuring participants perceptions of their coping preferences.

Finally, the use of bivariate linear regression analyses on low, medium, and high life stress to determine prediction of positive affect may increase Type I ("familywise") error with each statistical test that is conducted. However, since the analyses in this study

yielded statistical significance at the probability level of $p < .001$, it may not be considered a concern.

Directions for Future Research

A replication study could be conducted on a different sample while including emotion-focused coping. This would enable researchers to compare the predictive ability of PF- vs. EF-coping on positive affect while increasing the capacity to generalize the findings. It also may be informative to look at the predictor variables along with optimism, which is also related to positive affect (Bedi & Brown, 2005). There appear to be health advantages in individuals who utilize optimism in that they tend to recover more quickly from serious illness.

Another variable to consider including in future studies is *savouring*. This construct is defined as a source of perceived control over positive emotions; it relates to being able to find pleasure in events, but is unconnected to coping (Bryant, 2003). It examines the ability of an individual to create, intensify, and extend enjoyment through volitional abilities. Bryant argues that simply because one experiences positive events, that does not mean that they will be able to *savour the events*. Instead active management of positive affect indicates that there is a capacity to "regulate it, to find it, manipulate it, and sustain it" (p. 176). For example, life stress events may diminish the perceived ability to savour the future or the moment, but may preserve the ability to savour the past. Therefore, future research might delve into life stress and PF-coping in predicting positive affect as related to an individual's capacity to savour future, present, and past events.

Conclusions

The results of this study indicate that whether or not levels of life stress are controlled for, problem-focused coping is predictive of positive affect. Moreover, the current study demonstrated that problem-focused coping is predictive of positive affect and the absence of it is predictive of negative affect. Among the two predictor variables, PF-coping is an important predictor of positive affect. In addition, levels of life stress moderates the contribution of PF-coping on positive affect. Under conditions of moderate life stress, problem-focused coping predicted positive affect the most.

Among the three PF-coping subfactors, positive reappraisal the was most strongly related to planful problem solving, and the criterion variable, positive affect. It seems that if one wishes to ensure that positive affect will result from one's coping efforts, it would be advisable to utilize positive reappraisal and planful problem solving in conjunction with some carefully sought out social support.

The findings from this study may be useful for both professionals and individuals, including academics, athletes, clinicians, and those involved in the health and medical sciences. The applicability of the results for clinicians in assisting clients who are experiencing a moderate to high degree of life readjustments is notable. Most importantly, clients should be encouraged to enact behaviors that increase their level of positive affect to the highest degree. Although, clients experiencing depression and/or grief-related life adjustments need to go through the grief process (i.e., acknowledging their sadness, etc.), they should also be taught adaptive coping strategies, such as positive reappraisal, seeking social support, and problem solving. These strategies will increase

an individual's psychological and physiological gains via positive affect, thus improving their performance, health, immunological benefits, flexible thinking, and subsequent adaptive coping.

References

Bedi, G., & Brown, S. L. (2005). Optimism, coping style and emotional well-being in cardiac patients. *British Journal of Health Psychology, 10,* 57-70.

Breakwell, G. M., Hammond, S., & Fife-Schaw, C. (2002). *Research Methods in Psychology* (2nd ed.). London: Sage.

Bryant, F. B. (2003). Savoring Beliefs Inventory (SBI): A scale for measuring beliefs about savouring. *Journal of Mental Health, 12,* 175-196.

Carver, C. S., & Scheier, M. (1994). Situational coping and coping dispositions in a stressful situation. *Journal of Personality and Social Psychology, 66,* 184-195.

Carver, C. S., Scheier, M. F., & Weintraub, J. K. (1989). Assessing coping strategies: A theoretically based approach. *Journal of Personality and Social Psychology, 56,* 267-283.

Cohen, J. (1992). A power primer. *Psychological Bulletin, 112,* 155-159.

Crowley, B. J., Hayslip, B., & Hobdy, J. (2003). Psychological hardiness and adjustment to life events in adulthood. *Journal of Adult Development, 10,* (4), 237-248.

Diwan, S., Jonnalagadda, S. S., & Balaswamy, S. (2004). Resources predicting positive and negative affect during the experience of stress: A study of older Asian Indian immigrants in the United States. *The Gerontologist, 44,* 605-614.

Dunkley, D. M., Zurroff, D. C., & Blankstein, K. R. (2003). Self-critical perfectionism and daily affect: Dispositional and situational influences on stress and coping. *Journal of Personality and Social Psychology, 84,* 234 -252.

Fiske, S. T., & Taylor, S. E. (1991). *Social Cognition* (2nd ed.). New York: MacGraw-Hill.

Folkman, S., & Lazarus, R. S. (1980). An analysis of coping in a middle-aged community sample. *Journal of Health and Social Behavior, 21,* 219-239.

Folkman, S., & Lazarus, R. S. (1985). If it changes it must be a process: Study of emotion and coping during three stages of a college examination. *Journal of Personality and Social Psychology, 48,*(1), 150-170.

Folkman, S., & Lazarus, R. S. (1988). *Ways of coping questionnaire sampler set: Manual, test booklet, and scoring key.* Redwood City: CA, Consulting Psychologists.

Folkman, S., Lazarus, R. S., Dunkel-Schetter, C. , DeLongis, A., & Gruen, R. (1986). The dynamics of a stressful encounter: Cognitive appraisal, coping, and encounter outcomes. *Journal of Personality and Social Psychology, 50,* 992-1003.

Folkman, S., & Moskowitz, J. T. (2000). Positive affect and the other side of coping. *American Psychologist, 55* (6), 647-654.

Folkman, S., & Moskowitz, J. T. (2003). Positive psychology from a coping perspective. *Psychological Inquiry, 14*(2), 121-125.

Fredrickson, B. L. (1998). What good are positive emotions? *Review of General Psychology, 2,* 300-319.

Fredrickson, B. L. (2000). Cultivating positive emotions to optimize health and well-being. *Prevention & Treatment, 3.* np.

Fredrickson, B. L. (2001). The role of positive emotions in positive psychology. *American Psychologist, 56,* 218-226.

Fredrickson, B. L., & Joiner, T. (2002). Positive emotions trigger upward spirals toward emotional well-being. *Psychological Science, 13* (2), 172-175.

Fredrickson, B. L., & Levenson, R. W. (1998). Positive emotions speed recovery from the cardiovascular sequelae of negative emotions. *Cognition and Emotion, 12,* 191-220.

Fredrickson, B. L., Mancuso, R. A., Branigan, C., & Tugade, M. M. (2000). The undoing effect of positive emotions. *Motivation and Emotion, 24,* 237-258.

Hennessee, D. A. (2003, April). College students and chronic stress: A comparison of problem- and emotion-focused coping and anxiety levels. Symposium conducted at the meeting of the 87th Spartan Psychological Association Research Conference, San Jose, CA.

Holmes, T. H., & David, E. M. (Eds.). (1989). *Life change, life events, and illness.* New York: Praeger.

Holmes, T. H., & Rahe, R. H. (1967). The social readjustment rating scale. *Journal of Psychosomatic Research, 11,* 213-218.

Holahan, C. J., & Moos, R. H. (1985). Life stress and health: Personality, coping, and family support in stress resistance, *Journal of Personality and Social Psychology, 49,* 739-747.

Horowitz, M., Adler, N., & Kegeles, S. (1988). A scale for measuring the occurrence of positive states of mind: a preliminary report. *Psychosomatic Medicine, 50,* 477-483.

Johnson, J. H., & Sarason, I. G. (1979). Moderator variables in life stress research. In I. G. Sarason & C. D. Spielberger (Eds.), *Stress and anxiety: Vol. 6. The series in clinical and community psychology* (pp. 151-167). Washington, D.C.: Hemisphere.

Kirkcaldy, B. D., Cooper, C. L., Eysenck, M., & Brown, J. (1994). Anxiety and coping. *Personality and Individual Differences, 17,* 681-684.

Kobasa, S. C. (1982). The hardy personality: Toward a social psychology of stress and health. In G. S. Sanders & J. Suls (Eds.), *Social psychology of health and illness,* (pp. 3-32). Hillsdale, NJ: Erlbaum.

Lazarus, R. S., (1993). Coping theory research: Past, present, and future. *Psychosomatic Medicine, 55,* 234-247.

Lazarus, R. S. (2000). Toward better research on stress and coping. *American Psychologist, 55,* 665-673.

Lazarus, R. S., & Folkman, S. (1984), *Stress, appraisal, and coping.* New York: Springer.

Lyubomirsky, S. (2000). On studying positive emotions. *Prevention & Treatment, 3,* Article 5. np.

Miller, M. A., Rahe, R. H. (1997). Life changes scaling for the 1990s. *Journal of Psychosomatic Research, 43,* 279-292.

Ntoumanis, N., & Biddle, S. J. H. (1998). The relationship of coping and its perceived effectiveness to positive and negative affect in sport. *Sports Science & Recreational Management, 24,* 773-788.

Nunally, J. C. (1978). Psychometric theory (2nd. ed.). New York: McGraw-Hill.

Rahe, R. H., McKean, J. D., & Arthur, R. J. (1967). A longitudinal study of life change and illness patterns. *Journal of Psychosomatic Research, 11,* 213-218.

Scully, J. A., Tosi, H., & Banning, K. (2000). Life events checklists: Revisiting the social readjustment rating scale after 30 years. *Educational and Psychological Measurement, 60,* 864-876.

Seligman, M. E. P., & Csikszentmihalyi, M. (2000). Positive psychology: An introduction. *American Psychologist, 55,* 5-14.

Skinner, E. A., & Zimmer-Gembeck, M. J. (2007). The development of coping. *Annual Review of Psychology, 58,* 119-144.

Smith, R. E., Smoll, F. L., & Ptacek, J. T. (1990). Conjuctive moderator variables in vulnerability and resiliency research: Life stress, social support and coping skills, and adolescent sport injuries. *Journal of Personality and Social Psychology, 58,* 360-370.

Spirito, A., Stark, L. J., Williams, C. (1988). Development of brief coping checklist for use with pediatric populations. *Journal of Pediatric Psychology, 13,*(4), 555-574.

Tabachnick, B. G., & Fidell, L. S. (2007). *Using multivariate statistics* (5th ed.). Boston, MA: Allyn and Bacon.

Tugade, M. M., Fredrickson, B. L., & Barrett, L. F. (2004). Psychological resilience and positive emotional granularity: Examining the benefits of positive emotions on coping and health. *Journal of Personality, 72,* 1161-1190.

Turner-Cobb, J. M., & Steptoe, A. (1998). Psychological influences on upper respiratory infectious illness in children. *Journal of Psychosomatic Research, 45,* (4), 319-330.

Watson, D. (2002). Positive affectivity: The disposition to experience pleasurable emotional states. In C. R. Snyder and S. J. Lopez, *The handbook of positive psychology,* (pp. 106-119). New York: Oxford University Press.

Watson, D., Clark, L. A., & Tellegen, A. (1988). Development and validation of brief measures of positive and negative affect. The PANAS scales. *Journal of Personality and Social Psychology, 54,* 1063-1071.

Wyler, A. R., Masuda, M., & Holmes, T. H. (1989). Magnitude of life events and serious illness. In T. H. Holmes and E. M. David (Eds.), *Life change, life events, and illness,* (pp. 226-235). New York: Praeger.

Yamasaki, K., Sakai, A., & Uchida, K. (2006). A longitudinal study of the relationship between positive affect and both problem- and emotion-focused coping strategies. *Social Behavior and Personality, 34,* 499-510.

Yamasaki, K., & Uchida, K. (2006). Relation of positive affect with emotion-focused coping in Japanese undergraduates. *Psychological Reports, 98,* 611-620.

Yerkes, R. M., & Dodson, J. D. (1908). The relation of strength of stimulus to rapidity of habit-formation. *Journal of Comparative Neurology and Psychology, 18,* 459-482.

Zeidner, M. (1994). Personal and contextual determinants of coping and anxiety in an evaluative situation: A prospective study. *Personality and Individual Differences, 16,* 899-918.

Zeidner, M. (1995). Coping with examination stress: Resources, strategies, outcomes. *Anxiety, Stress, and Coping, 8,* 279-298.

Appendix

Institutional Review Board Approval Letter

San José State
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To: Deborah Hennessee

From: Pam Stacks, AVP
Graduate Studies & Research

Date: December 12, 2005

The Human Subjects-Institutional Review Board has approved your request to use human subjects in the study entitled:

"Life Stress and Problem-Focused Coping: Levels of Readjustment that Predict Positive Affect."

This approval is contingent upon the subjects participating in your research project being appropriately protected from risk. This includes the protection of the anonymity of the subjects' identity when they participate in your research project, and with regard to all data that may be collected from the subjects. The approval includes continued monitoring of your research by the Board to assure that the subjects are being adequately and properly protected from such risks. If at any time a subject becomes injured or complains of injury, you must notify Pam Stacks, Ph.D. immediately. Injury includes but is not limited to bodily harm, psychological trauma, and release of potentially damaging personal information. This approval for the human subjects portion of your project is in effect for one year, and data collection beyond December 12, 2006 requires an extension request.

Please also be advised that all subjects need to be fully informed and aware that their participation in your research project is voluntary, and that he or she may withdraw from the project at any time. Further, a subject's participation, refusal to participate, or withdrawal will not affect any services that the subject is receiving or will receive at the institution in which the research is being conducted.

If you have any questions, please contact me at (408) 924-2480.

Cc: Ronald Rogers